

ABSTRACT OF THE DISCLOSURE

An electric generator system for producing electric power from the environmental temperature changes such as occur during a normal summer day on Earth or Mars. In a preferred embodiment a phase-change mass is provided which partially or completely freezes during the relatively cold part of a cycle and partially or completely melts during the relatively hot part of the cycle. A thermoelectric module is positioned between the phase-change mass and the environment. The temperature of the phase-change mass remains relatively constant throughout the cycle. During the hot part of the cycle heat flows from the environment through the thermoelectric module into the phase change mass generating electric power which is stored in an electric power storage device such as a capacitor or battery. During the cold part of the cycle heat flows from the phase change mass back through the module and out to the environment also generating electric power that also is similarly stored. An electric circuit is provided with appropriate diodes to switch the direction of the current between the hot and cold parts of the cycle. A preferred phase change mass is a solution of water and ammonia that has freeze points between about 270 K to about 145 K depending on the water ammonia ratio. Preferably, a finned unit is provided to efficiently transfer heat from a module surface to the environment.